

No new matter was added by this response. Further, because all limitations of the pending claims have been previously examined, no further search or consideration is required.

Rejections Under 35 U.S.C. § 102

In the Office Action, claims 1-3, 25-29, 31-34, and 37 were rejected under 35 U.S.C. § 102(a) as being anticipated by Chung (U.S. 6,288,905). The Applicant respectfully traverses the rejection and requests the Office to consider the following.

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” (*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987), M.P.E.P. §2131, 8th Ed.).

The Office Action mistakenly asserts “at least one conductive trace 134, 132, 110 (col. 10, line 40-50 . . .) is shown disposed on said first dielectric and in electrical contact with said active surface” (Office Action, at page 2). Claim 1 requires “at least one conductive trace disposed on said first dielectric material layer and in electrical contact with said microelectronic die active surface” Chung’s trace (metal layer 110) is in electrical contact with the “via conductor 132b” and not with the active surface. Further, Chung’s via conductor 132b is in electrical contact with the “oxidation-resistant material 134b” and not with the active surface. Even further, Chung’s oxidation-resistant material 134b is in electrical contact with the “bump 144” and not with the active surface. It is only Chang’s bump 144 that is in electrical contact with the active surface at the “contact pad 142b”.

The Office Action attempts to construe two elements into a form that is repugnant to ordinary usage and logic. First, a “trace” is well known to be a uniform metal or doped semiconductive structure, a significant portion of which is elongated and runs laterally when viewed in proper cross-section. Only Chang’s “metal layer 110” could qualify as a trace, and it is not in electrical contact with the active surface. Second, “in electrical contact” is well known to mean one structure physically touching another structure. Thus, Chang’s “trace” (metal layer 110) is only “in electrical contact” with the “via conductor 132b”. It is true, however, that

Chang's "trace" (metal layer 110) may be electrically coupled to the active surface, but only through electrical contact with the "via conductor 132b", which is in electrical contact with the "oxidation-resistant material 134b", which is in electrical contact with the "bump 144", which finally (and solely) is in electrical contact with the active surface at the "contact pad 142b".

Because each and every element of claim 1 is not taught by Chang, withdrawal of the rejection is respectfully requested.

Claim 2 adds the limitation of "at least one additional dielectric material layer disposed over said at least one conductive trace". The Office Action asserts a "dielectric 120 is shown disposed over said one trace." (Office Action, page 2). The Office Action is mistaken. The dielectric 120 simply is not disposed over the "trace" (metal layer 110). Even where the Office action has misconstrued the trace as including "the via conductor 132b" or the "oxidation-resistant material 134b", the "dielectric 120" is not disposed over the conductive trace. Finally, where the dielectric 120 may be disposed over the bump 144, it is repugnant to ordinary usage to construe a bump as a trace. Because each and every element of claim 2 is not taught by Chang, withdrawal of the rejection is respectfully requested.

Claim 3 adds the limitation that "at least a portion of said at least one conductive trace extends through and resides on said at least one additional dielectric material layer." The Office Action asserts that the "via conductor 132b" is the trace. But this assertion is a mistake as set forth above. In any event, the "dielectric material 120" is not above the "trace" (metal layer 110). Because each and every element of claim 3 is not taught by Chang, withdrawal of the rejection is respectfully requested.

The Office Action asserts that Chang further teaches what is claimed at Figure 14. The Office Action is mistaken. Chang confirms that, other than the connectors 160, it is "otherwise similar to contact module 100 of FIG. 6 in construction and materials" (Chang at column 11, lines 57 et seq.) Even if Chang at Figure 14 could be construed to include the conductor 160 as the trace as claimed by the inventors, the conductor 160 suffers from the same defect of not being in electrical contact with the microelectric die active surface (see Figure 13), as the conductor 160 is in electrical contact with the "via conductor 132b" which in turn is in electrical

contact with the "bump 144", which alone is in electrical contact with the active surface.

Because each and every element of what is claimed is not taught by Chang, withdrawal of the rejection is respectfully requested.

Regarding claim 26, Chung utterly fails to teach the limitation "encapsulation material includes. . . at least one surface planar to said microelectronic die back surface." Because each and every element of claim 26 is not taught by Chang, withdrawal of the rejection is respectfully requested. Because claims 27-29 depend from claim 26, withdrawal of their rejections is also respectfully requested.

Regarding claim 31, Chung also fails to teach the encapsulation material is "substantially planar to said plurality of microelectronic dice active devices" (claim 31). This can be verified by review of FIGS. 13 and 14 where the encapsulation material (not present in FIG. 13) would fill to a level above the active surface, and where the encapsulation material (not labeled in FIG. 14) can possibly be construed to be substantially planar to the active surface of die 140 on the left edge, but nowhere else by virtue of the presence of the conductor 160 in that position. Because each and every element of claim 31 is not taught by Chang, withdrawal of the rejection is respectfully requested. Because claims 32-34 and 37 depend from claim 31, withdrawal of their rejections is also respectfully requested.

In the Office Action, claims 1, 16, 26, 27, 31, and 32 were rejected under 35 U.S.C. § 102(b) as being anticipated by Fordemwalt (U.S. 3,407,479). The Applicant respectfully traverses the rejection and requests the Office to consider the following.

Initially, the Applicants note that claim 16 was a non-elected claim and was cancelled in the preliminary amendment. Rejection of claim 16 should be withdrawn.

Regarding claim 1, Fordemwalt fails to teach at least one limitation of claim 1, "at least one conductive trace disposed on said first dielectric material layer and in electrical contact with said microelectronic die active surface". Fordemwalt also fails to teach at least one limitation of claim 1, "wherein said at least one conductive trace extends adjacent said microelectronic die active surface". Fordemwalt also fails to teach at least one limitation of claim 1, "wherein said at least one conductive trace extends . . . adjacent said encapsulation material surface". Because

each and every element as set forth in claim 1 is not found, either expressly or inherently described, in Fordemwalt, withdrawal of the rejection is respectfully requested.

Regarding claim 26, Fordemwalt utterly fails to teach the limitation "encapsulation material includes. . . at least one surface planar to said microelectronic die back surface." Because each and every element of claim 26 is not taught by Fordemwalt, withdrawal of the rejection is respectfully requested. Because claim 27 depends from claim 26, withdrawal of its rejection is also respectfully requested.

Regarding claims 31 and 32, Fordemwalt fails to teach at least the limitation, "at least one conductive trace disposed on said first dielectric material layer and in electrical contact with said microelectronic die active surface". Fordemwalt also fails to teach at least the limitation "wherein said at least one conductive trace extends adjacent said microelectronic die active surface". Because each and every element is not found, either expressly or inherently described, in Fordemwalt, withdrawal of the rejection is respectfully requested.

In the Office Action, claims 1, 16, 26, and 27 were rejected under 35 U.S.C. § 102(a) as being anticipated by Nishihara et al. (U.S. 6,013,953). The Applicant respectfully traverses the rejection and requests the Office to consider the following.

Initially, the Applicants note that claim 16 was a non-elected claim and cancelled in the preliminary amendment. Rejection of claim 16 should be withdrawn.

The Office Action cites to an "encapsulation 18" (Office Action, page 4) that does not exist in Nishihara et al. The only reference to the numeral 18 is with respect to "18 pieces of copper" (Nishihara et al. at col. 7, line 11). Because the rejection is incomprehensible, it should be withdrawn.

The other limitations cited in the Office Action may describe what is disclosed in Nishihara et al., but claim 1 requires "at least one conductive trace disposed on said first dielectric material layer and in electrical contact with said microelectronic die active surface" Nishihara's trace (copper through-hole 5) is not disposed on the first dielectric material (adhesive 3). Further, Nishihara's trace is not in electrical contact with the active surface, rather with a terminal that is prominent from the active surface. Because the rejection is

incomprehensible, and because each and every element as set forth in claim 1 is not found, either expressly or inherently described, in Nishihara et al., withdrawal of the rejection is respectfully requested.

Regarding claim 26, Nishihara et al. utterly fail to teach the limitation "encapsulation material includes. . . at least one surface planar to said microelectronic die back surface." Because each and every element of claim 26 is not taught by Nishihara et al., withdrawal of the rejection is respectfully requested. Because claim 27 depends from claim 26, withdrawal of its rejection is also respectfully requested.

In the Office Action, claims 1, 4, 24, 26, 27, 30, 31, 32, 35, and 36 were rejected under 35 U.S.C. § 102(b) as being anticipated by Donovan (U.S. 3,343,255). The Applicant respectfully traverses the rejection and requests the Office to consider the following.

The Office Action cites to a "first dielectric 123" (Office Action, page 4) that does not exist in Donovan. Because the rejection is incomprehensible, it should be withdrawn.

The Office Action incorrectly refers to a "trace 32" that in fact is no more and no less than an "ohmic contact 32". The ohmic contact 32 cannot be construed to be a trace as claimed, let alone to have the limitations of the trace as claimed. Because each and every element of claim 1 is not taught by Donovan, withdrawal of the rejection is respectfully requested.

Claims 4 and 24 depend from claim 1 and are therefore not anticipated. Further, Donovan fails to teach the limitation of claim 24. Withdrawal of the rejections is respectfully requested.

Regarding claim 26, Donovan utterly fails to teach the limitation "encapsulation material includes . . . at least one surface planar to said microelectronic die back surface." Because each and every element of claim 26 is not taught by Donovan, withdrawal of the rejection is respectfully requested. Because claim 27 and 30 depend from claim 26, withdrawal of its rejection is also respectfully requested.

Regarding claims 31 and 32, Donovan fails to teach at least the limitation, "at least one conductive trace disposed on said first dielectric material layer and in electrical contact with said microelectronic die active surface". Donovan also fails to teach at least the limitation "wherein



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AMENDMENT AND REPLY UNDER 37 CFR § 1.111

Serial Number: 09/640,961

Filing Date: August 16, 2000

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said at least one conductive trace extends adjacent said microelectronic die active surface”.

Because each and every element is not found, either expressly or inherently described, in

Fordemwalt, withdrawal of the rejection is respectfully requested. Because claims 32, 35, and 36 depend from claim 31, withdrawal of its rejection is also respectfully requested.

Rejections Under 35 U.S.C. § 103

In the Office Action, claims 4, 24, 35, and 36 were rejected as being unpatentable over previously cited references. The Applicant respectfully traverses this rejection and requests the Office to consider the following.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaack, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (M.P.E.P. § 2143 7th Ed).

The Applicants incorporate all the discussion regarding the inadequacy of the previously cited references to teach each and every element of what is claimed.

The Office Action admits that Chung and Fordemwalt et al. do not teach a heat dissipation device. However, what teaching Donovan et al. adds to teach a heat dissipation device, does not amount to a teaching or suggestion of all the limitations of claims 4, 24, 35, and 36 as set forth in this Reply. Further, where heat dissipation (or heat dissipation at all, for that matter) is not mentioned in Chung and/or Donovan et al., the Office Action has used the Applicants' disclosure as a guide to make the claimed combination. Withdrawal of the rejections is respectfully requested.

In the Office Action, claims 1-4 and 24-37 were rejected. Because the statutory basis for

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this rejection was not stated, the rejection is incomprehensible and the rejection should be withdrawn. (M.P.E.P. §707.07(d)). In M.P.E.P. §707.07(d), it states, “[t]he examiner should designate the *statutory basis* for any ground of rejection by express reference to a section of 35 U.S.C. in the opening sentence of each ground of rejection.” (Underlined emphasis added).

In the interest of putting the application into condition for allowance, the Applicant notes that Saito et al., and Fillion et al., suffer from the same various deficiencies of the other references cited. The rejection should be withdrawn.

Further, the Applicant notes that reference to the Japanese patents 5-206320, 1-217951 and 5-5409 is provided by the Office Action that is in violation of the directions in 37 C.F.R. § 1.104(d)(1). Further, the rejection based upon the Japanese patents is incomprehensible. Further, Applicant sees no structure in the Japanese patents that teaches or suggests what is claimed. Withdrawal of the rejection is respectfully requested.

CONCLUSION

Claims 1-4, and 24-37 are now pending. Claim 26 was amended to correct a typographical error.

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney John Greaves (503 913-3992, or if no answer, 801 487-5051, or if no answer, 612 373-6900) or the below signed attorney to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

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Date July 12, 2002

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 12 day of July, 2002.

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